Disclaimer

• The information in this presentation represents a snapshot of work in progress within the DMTF.

• This information is subject to change without notice. The standard specifications remain the normative reference for all information.

• For additional information, see the DMTF website.
Providing Feedback

- Feedback to the DMTF Redfish Forum is encouraged
  - Submit items using the DMTF feedback portal
    - https://www.dmtf.org/standards/feedback
  - Questions and comments can be posted on the Redfish User Forum
    - https://www.redfishforum.com
Problem Statement

• Large numbers of settings make it difficult for users to select the correct ones
• Different hardware can have different settings that will work best under different use scenarios
  • Applies to many resources, including processors, networking, storage
  • Want a common solution that is not specific to any resource
• Misconfigurations lead to support calls, customer frustration
• Need a way to communicate recommended settings to end users
• Need to make it easy to select “standard” settings
• Need to separate settings metadata from regular data – don’t flood users with extra data with every read
• Want to express intra-resource dependencies in a coherent fashion
• Limit use of annotations, they don’t work well with many languages
Proposal: Capabilities Object

- Shadow of a regular resource
- Documents explicitly:
  - Supported settings
  - Recommended settings
  - Default settings
  - Supported use cases
  - Overrides to recommended settings based on use cases
Capability objects: document form

- gzip’ed JSON blob
- Retrievable on demand
- Stored in standard location: /redfish/v1/capabilities
  - RDE: retrieved via new command (GetResourceCapabilities)
  - Separate documents for different device manufacturers, firmware/HW versions to enable support for multiple concurrent devices in the same system
- Document title stored in targeted resource
Additions to Resources

- New fields (below, from Mockup):

  "SupportedUseCases": [ "FCoE", "Telecom"
  ]
  "CurrentUseCase": "none",

  "CapabilitiesDefinition": "ExampleResource.Contoso.CheesyAdapter"

- Named use cases supported by resource
- Currently selected use case; writing effects all recommendations for use case
- Capabilities Document name
Capabilities: Document version fields

• Modeled after interoperability profiles

{
    "SchemaDefinition": "ResourceInfo.v1_0_0",
    "CapabilityName": "ExampleResource.Contoso.CheesyAdapter",
    "Purpose": "This is sample capabilities information for an ExampleResource.",
    "OwningEntity": "Contoso",
    "ContactInfo": "mozzarella@contoso.com",
    "Name": "ResourceInfo for ExampleResource",
    "ActionData": { "/1": "ActionInfo stuff here" }
    "GlobalCapabilities": { "/2": "Top-level stuff here" }
    "ResourceObjects": [ "/3": "Property-specific stuff here" ]
}
Capabilities: GlobalCapabilities

"GlobalCapabilities": {
  "AllowedAccess": ["read", "replace", "update", "create", "delete"],
  "SupportedUseCases": ["FCoE": "FibreChannel over Ethernet implementations", "Telecom": "Telecommunications networking with DPDK"
  ]
},

Named, schema-defined use cases; also implicitly: “default”: schema-specified defaults “none”: settings don’t match a defined use case
Capabilities: ResourceObjects

"ResourceObjects": [
   "ExampleResource.ExampleResource": {
      "ObjectProperties": [
         "MTU": {
            "DisplayName": "Maximum Transfer Unit",
            "Writable": true,
            "TimeRequiredToApply": "Immediate",
            "AllowableValues": [256, 512, 1024, 2048, 4096, 8192, 16384],
            "DefaultValue": 2048,
            "MinimumRecommendedValue": 2048,
            "MaximumRecommendedValue": 8192,
         }
      ]
   }
]
Capabilities: ResourceObjects ctd.

"ResourceObjects": [ 
  "ExampleResource.ExampleResource": { 
    "ObjectProperties": [ 
      "MTU": { ... } 
      "ConnectionName": { 
        "DisplayName": "Name of Connection", 
        "Writable": true, 
        "TimeRequiredToApply": "OnReset", 
        "DefaultValue": "Connection_15", 
        "PatternRequirement": "^([a-zA-Z_][a-zA-Z0-9_]*)$", 
        "RecommendedSetting": "Connection_15"
      },
      "FirmwareData": { 
        "DisplayName": "Firmware Data", 
        "Writable": false, 
        "ObjectName": "ExampleResource.FirmwareData",
      }
    ]
  }
]
Capabilities: Use Case Overrides

"ExampleResource.FirmwareData": {
  "ObjectProperties": [
    "AllocatedQueues": {
      ...
      "MinimumRecommendedValue": 12,
      "MaximumRecommendedValue": 18,
      "UseCaseOverrides": [
        "FCoE": {
          "MaximumRecommendedValue": 15,
          "Default": 12
        },
        "Telecom": {
          "MinimumRecommendedValue": 16,
          "MaximumRecommendedValue": 32,
          "Default": 24
        }
      ]
    }
  ]
}

Overrides default recommendation

Different use cases can have different overrides

Defaults can change for different use cases
Q&A & Discussion

Redfish

www.dmtf.org